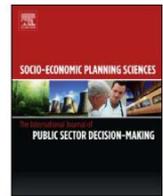




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# The utilization of diagnostic tests among the elderly: Evidence from Malaysia

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## ABSTRACT

Diagnostic test plays a major role in reducing the prevalence of non-communicable diseases (NCDs). The present study examines the relationships between the utilization of diagnostic tests and socioeconomic, insurance, lifestyle, and health factors among the elderly in Malaysia. Analyses based on the National Health and Morbidity Survey 2011 (NHMS 2011) suggest that high income and having private insurance are associated with a higher likelihood of utilizing diagnostic tests. However, low education levels, being employed and smoking are associated with a lower propensity to utilize. These results provide public health administrators with useful information on policy development. In particular, the proposed policies include providing the poor with nominal price of basic diagnostic tests, introducing various health education programmes to the public, creating health awareness campaigns to encourage elders who do not own private insurance to utilize diagnostic tests, as well as making basic diagnostic tests compulsory for all elders owning government insurance.

## 1. Introduction

The rise in non-communicable diseases (NCDs) is a serious public health issue across the globe. The majority of the mortality are associated with NCDs, most notably heart diseases and cancers. In 2012, NCDs were responsible for about 38 million deaths [1]. More than half of these deaths comprised the elderly in developing countries [1]. More alarming is that the total NCD induced deaths are estimated to reach 52 million by 2030. In addition, the total losses related to NCDs and the costs of implementing policies in developing countries are predicted to reach United States dollar (USD) 7 trillion and 11.2 billion, respectively, by 2025 [1].

In Malaysia, a substantial proportion of the elderly population suffer from chronic conditions, most notably hypertension and hypercholesterolemia [2]. This phenomenon is alarming as the elderly population is increasing at a fast pace. There is an evidence suggesting that the median age of the Malaysian population will increase from 26 years in 2010 to 37 years in 2040 [3]. The rise in the number of the elderly is likely to cause a huge spike in health expenditure as more funds will be allocated for senior health care. Both public and private health expenditures are expected to increase from Malaysian Ringgit (RM) 34 billion in 2010 to RM 59 billion in 2020 [3].

It is clearly evident that prevention can reduce the risk of developing NCDs. Although there are three categories of prevention (i.e. primary, secondary and tertiary), the focus of the present study is only secondary prevention [4]. The utilization of diagnostic tests is an

example of secondary prevention as it allows for early detections of diseases when treatments are possible. In particular, secondary prevention is an action that can prevent diseases but without lowering the likelihood of occurrence. While the utilization of diagnostic tests (i.e. secondary prevention) has commonly been studied in economic literature, few such studies have been done in developing countries, especially in Malaysia. Previous studies conducted in developed countries consistently found that economic, demographic, insurance and health factors are associated with consumer purchase decisions of diagnostic tests [5–10]; etc.). Although previous studies examined the utilization of diagnostic tests in detail, their findings may be different from those evidenced in the present study. This is because the scope of the present study is a developing country where people have less access to health care facilities. Furthermore, people in developing countries have poorer socioeconomic status and lower health awareness than those in developed countries. Moreover, developing countries have lower availability of health services and poorer transport facilities than developed countries, thus people in developing countries tend to face more constraints in utilizing medical care [11]. In the light of these factors, the present study anticipates that the tendency to utilize diagnostic tests among people in developed and developing countries is dissimilar.

Cheah [12] is among the few researchers who focuses on this topic in Malaysia. In the study, Cheah [12] did not examine the influences of private and government insurances on the utilization of diagnostic tests in great detail. Furthermore, he did not examine the insurance differences across socioeconomic factors in the utilization of diagnostic tests.

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